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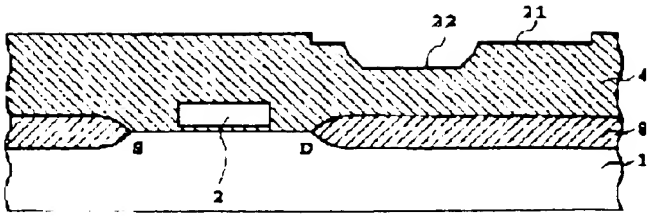
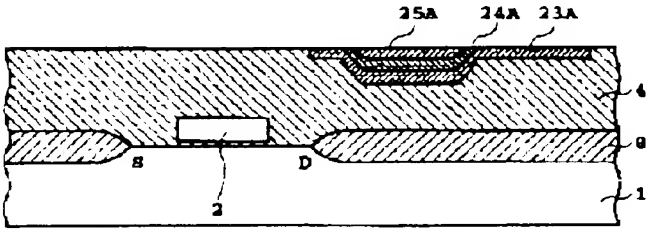
TITLE : FABRICATION OF FERROELECTRIC CAPACITIVE ELEMENT





ABSTRACT : PROBLEM TO BE SOLVED: To fabricate a ferroelectric capacitive element conveniently and efficiently by removing a thin film for the upper electrode, a ferroelectric thin film and a thin film for the lower electrode except inside a trench and then fabricating a capacitive element structure comprising an upper electrode, a ferroelectric thin film and a lower electrode in the trench.

SOLUTION: A BPSC(boron phosphosilicate glass) layer 4 is on a semiconductor substrate 1 is polished after a gate 2 is formed thereon. A trench 21 corresponding to the lower electrode pattern of a capacitive element is then machined by dry etching and a trench 22 corresponding to the ferroelectric pattern and the upper electrode pattern of the capacitive element is machined in the trench 21 by wet etching. Subsequently, a thin film for upper electrode, a ferroelectric thin film and a thin film for lower electrode are deposited sequentially thereon and polished sequentially to leave a lower electrode 23A, a ferroelectric layer 24A and an upper electrode 23A in the trenches 21, 22 while removing other parts thus fabricating a capacitive element structure.